

What is claimed is:

1 1. A frequency modulation (FM) recording apparatus, comprising:

2 an automatic gain controller equalizing a level of a frequency modulated video signal, the
3 frequency modulated video signal having luminance and color components, the frequency modulated
4 video signal being recorded on a recording medium;

5 a limiter preventing a level of the luminance components of the frequency modulated signal
6 output from said automatic gain controller from exceeding a predetermined value;

7 a recording equalizer equalizing an output of said limiter in accordance with the
8 characteristics of the recording medium;

9 a color low-pass filter filtering and transmitting the color component of the frequency
10 modulated video signal output from said automatic gain controller; and

11 a mixer combining the luminance component output from said recording equalizer with the
12 color component output from said color low-pass filter.

1 2. The frequency modulation recording apparatus of claim 1, further comprising:

2 a drop out detector recognizing a presence of a signal drop out in the frequency modulated
3 signal output from said automatic gain controller;

4 a switch being positioned between said recording equalizer and said mixer and being
5 controlled by said drop out detector, said switch passing the signal output from said recording

6 equalizer to said mixer if said drop out detector determines that a drop out does not exist and said
7 switch passing a predetermined level signal to said mixer if the drop out detector determines the
8 presence of a drop out.

1 3. The frequency modulation recording apparatus of claim 2, with the predetermined
2 level being ground.

1 4. The frequency modulation recording apparatus of claim 1, further comprising a color
2 killer being placed between said color low-pass filter and said mixer, said color killer terminating
3 a color component if said drop out detector determines a signal drop out.

1 5. The frequency modulation recording apparatus of claim 4, with said color killer
2 removing the color component when a level of color is below a predetermined value or when a
3 monochrome image is being recorded.

1 6. The frequency modulation recording apparatus of claim 1, further comprising a Direct
2 Chroma Controller (DCC) increasing a degree of amplification of said automatic gain controller on
3 a rising part and a falling part of a reproduced frequency modulated signal.

1 7. The frequency modulation recording apparatus of claim 1, with said Direct Chroma

2 Controller comprising:

3 a delay unit receiving a head switching signal and delaying the head switching signal for a
4 predetermined time; and
5 an exclusive OR gate performing an exclusive OR operation on the head switching signal and
6 the delayed head switching signal output from the delay, the output from the exclusive OR gate
7 being approved to an amplification control terminal of said automatic gain controller and the degree
8 of amplification of said automatic gain controller being adjusted on both a rising portion and a
9 falling portion of a head switching pulse.

8. The frequency modulation recording apparatus of claim 1, further comprising a color
low pass filter separating and transmitting the color component of the frequency modulated signal
output from said automatic gain controller.

9. The frequency modulation recording apparatus of claim 1, with said automatic gain
controller instantaneously raising a gain of the inputted frequency modulated video signal when the
3 inputted frequency modulated video signal is approved.

10. The frequency modulation recording apparatus of claim 1, with said direct chroma
controller reducing the response time of said automatic gain controller and generating an impulse
3 signal synchronized to a head switching pulse, said direct chroma controller generating impulse

4 signals coinciding with a rising and falling of the head switching pulses, the impulse signal being
5 approved to a node controlling a degree of amplification of said automatic gain controller and
6 instantaneously raising the amplification.

1 11. A frequency modulation (FM) recording apparatus, comprising:

2 an automatic gain controller equalizing a level of a frequency modulated video signal, the
3 frequency modulated video signal having luminance and color components, the frequency modulated
4 video signal being recorded on a recording medium;

5 a playback equalizer removing the color component by a color trap and equalizing a phase
6 characteristics of the frequency modulated video signal outputted from said automatic gain
7 controller;

8 a drop out detector recognizing a presence of a signal drop out in the frequency modulated
9 signal output from said playback equalizer;

10 a limiter preventing a level of the luminance components of the frequency modulated signal
11 output from said playback equalizer from exceeding a predetermined value;

12 a recording equalizer equalizing an output of said limiter in accordance with the
13 characteristics of the recording medium;

14 a switch removing said limiter and said recording equalizer when said drop out detector
15 detects a presence of the signal drop out in the frequency modulated signal;

16 a color low-pass filter filtering and transmitting the color component of the frequency

17 modulated video signal output from said automatic gain controller; and
18 a mixer combining the luminance component output from said recording equalizer with the
19 color component output from said color low-pass filter, the removal of said limiter and said
20 recording equalizer by said switch reducing a flow of noise into said mixer.

1 12. The apparatus of claim 11, with said switch being positioned between said recording
2 equalizer and said mixer and being controlled by said drop out detector, said switch passing the
3 signal output from said recording equalizer to said mixer if said drop out detector determines that
4 a drop out does not exist and said switch passing a predetermined level signal to said mixer if the
drop out detector determines the presence of a drop out.

13. The frequency modulation recording apparatus of claim 12, with the predetermined
level being ground.

14. The frequency modulation recording apparatus of claim 13, further comprising a color
2 killer being placed between said color low-pass filter and said mixer, said color killer terminating
3 a color component if said drop out detector determines a signal drop out.

15. The frequency modulation recording apparatus of claim 14, with said color killer
2 removing the color component when a level of color is below a predetermined value or when a

3 monochrome image is being recorded.

1 16. The frequency modulation recording apparatus of claim 15, further comprising a
2 direct chroma controller (DCC) increasing a degree of amplification of said automatic gain
3 controller on a rising part and a falling part of a reproduced frequency modulated signal.

1 17. The frequency modulation recording apparatus of claim 16, with said direct chroma
2 controller comprising:

3 a delay unit receiving a head switching signal and delaying the head switching signal for a
4 predetermined time; and

5 an exclusive OR gate performing an exclusive OR operation on the head switching signal and
6 the delayed head switching signal output from the delay, the output from the exclusive OR gate
7 being applied to an amplification control terminal of said automatic gain controller and the degree
8 of amplification of the automatic gain controller being adjusted on both a rising portion and a falling
9 portion of a head switching pulse.

1 18. The frequency modulation recording apparatus of claim 17, further comprising a color
2 low pass filter separating and transmitting the color component of the frequency modulated signal
3 output from said automatic gain controller.

1 19. The frequency modulation recording apparatus of claim 18, with said automatic gain
2 controller instantaneously raising a gain of the inputted frequency modulated video signal when the
3 inputted frequency modulated video signal is approved.

1 20. The frequency modulation recording apparatus of claim 19, with said direct chroma
2 controller reducing the response time of said automatic gain controller and generating an impulse
3 signal synchronized to a head switching pulse, said direct chroma controller generating impulse
4 signals coinciding with a rising and falling of the head switching pulses, the impulse signal being
5 approved to a node controlling a degree of amplification of said automatic gain controller and
6 instantaneously raising the amplification.

1 21. A method of processing a frequency modulated (FM) signal for recording, comprising
2 the steps of:

3 equalizing a level of a frequency modulated video signal by an automatic gain controller, the
4 frequency modulated video signal having luminance and color components, the frequency modulated
5 video signal being recorded on a recording medium, said automatic gain controller instantaneously
6 raising a gain of the inputted frequency modulated video signal when the inputted frequency
7 modulated video signal is approved;

8 removing the color component by a color trap and equalizing a phase characteristics of the
9 frequency modulated video signal outputted from said automatic gain controller by a playback

10 equalizer;
11 recognizing a presence of a signal drop out in the frequency modulated signal output from
12 said playback equalizer by a drop out detector;
13 preventing a level of the luminance components of the frequency modulated signal output
14 from said playback equalizer from exceeding a predetermined value by a limiter;
15 equalizing an output of said limiter in accordance with the characteristics of the recording
16 medium by a recording equalizer;
17 removing said limiter and said recording equalizer when said drop out detector detects the
18 presence of the signal drop out in the frequency modulated signal by a switch;
19 filtering and transmitting the color component of the frequency modulated video signal
20 output from said automatic gain controller by a color low-pass filter; and
21 combining the luminance component output from said recording equalizer with the color
22 component output from said color low-pass filter by a mixer, the removal of said limiter and said
23 recording equalizer by said switch reducing a flow of noise into said mixer.

1 22. The method of claim 21, with said switch being positioned between said recording
2 equalizer and said mixer and being controlled by said drop out detector, said switch passing the
3 signal output from said recording equalizer to said mixer if said drop out detector determines that
4 a drop out does not exist and said switch passing a ground signal to said mixer if the drop out
5 detector determines the presence of a drop out.

1 23. The method of claim 22, further comprising the steps of:

2 placing a color killer between said color low-pass filter and said mixer;

3 terminating by said color killer the color component of the frequency modulated video signal

4 from said color low-pass filter if said drop out detector determines a signal drop out, said color killer

5 removing the color component when a level of color is below a predetermined value or when a

6 monochrome image is being recorded;

7 increasing a degree of amplification of said automatic gain controller on a rising part and a
8 falling part of a reproduced frequency modulated signal by a direct chroma controller (DCC); and

9 a color low pass filter separating and transmitting the color component of the frequency
10 modulated signal output from said automatic gain controller.

11 24. The method of claim 23, with said step of increasing the degree of amplification of

12 said automatic gain controller by said direct chroma controller, further comprising the steps of:

13 receiving and delaying a head switching signal by a delay unit, said delay unit delaying the

14 head switching signal for a predetermined time; and

15 performing an exclusive OR operation on the head switching signal with an exclusive OR

16 gate and the delayed head switching signal output from the delay, the output from the exclusive OR

17 gate being applied to an amplification control terminal of said automatic gain controller and the

18 degree of amplification of the automatic gain controller being adjusted on both a rising portion and

9 a falling portion of a head switching pulse.

1 25. The method of claim 24, with said direct chroma controller reducing the response
2 time of said automatic gain controller and generating an impulse signal synchronized to a head
3 switching pulse, said direct chroma controller generating impulse signals coinciding with a rising
4 and falling of the head switching pulses, the impulse signal being applied to a node controlling a
5 degree of amplification of said automatic gain controller and instantaneously raising the
6 amplification.